(No Model.)

# W. H. GOLDSMITH.

## COMBINED COTTON WASTE PICKER AND LAPPER.

No. 385,455. Patented July 3, 1888.

Fig. 1.

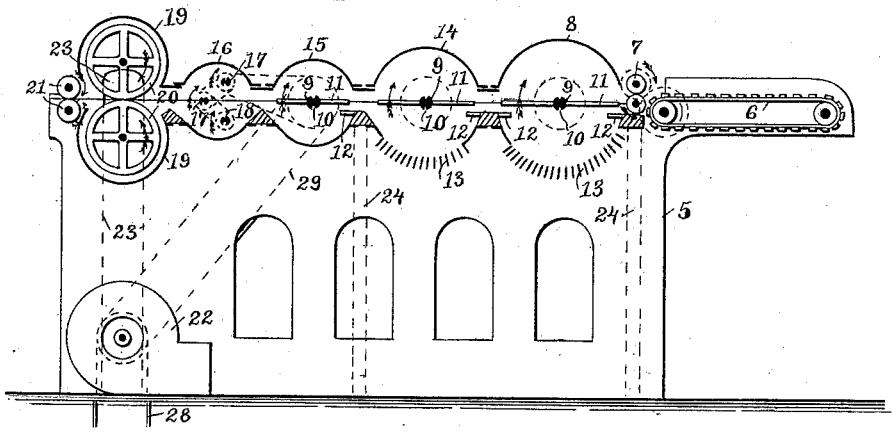
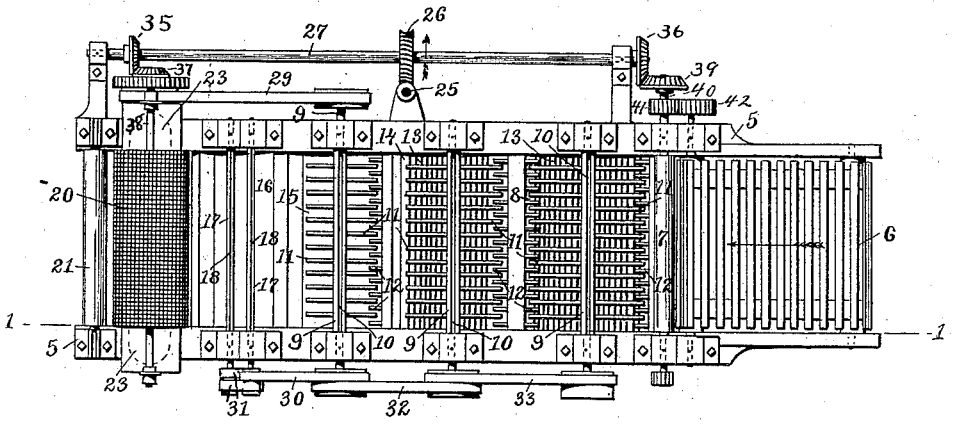


Fig. 2.



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# UNITED STATES PATENT OFFICE.

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## COMBINED COTTON-WASTE PICKER AND LAPPER.

SPECIFICATION forming part of Letters Patent No. 385,455, dated July 3, 1888.

Application filed November 8, 1886. Serial No. 218,242. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM H. GOLDSMITH, of Fall River, in the county of Bristol and State of Massachusetts, have invented an Improved Form of Combined Cotton-Waste Picker and Lapper, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to apparatus for extracting or picking the short-fiber cotton from cotton waste or the ordinary spinning-machine refuse and then forming the picked cotton into a lap.

The objects of my invention are to provide a combined cotton-waste picker and lapper apparatus by which the matted and dirty cotton waste or refuse may have the dirt thoroughly cleaned therefrom and may be picked and separated into the desirable short-fiber cotton and the cotton threads, and by which the cleaned picked short fiber may be formed into a lap as it is delivered from the machine, while the undesirable pieces of extracted cotton threads may be caught and retained at certain definite points within the machine, from where they may be readily removed.

To the above purposes my invention consists, principally, in a series of intercommunicating beater-cylinders, some of which are provided with sifting-grates, combined with a peculiar form of thread-catching box and of cotton-lapper drums; and, further, the invention consists in other features of novel construction and arrangement, all assembled and operated as hereinafter fully described and claimed.

In the accompanying drawings, illustrating my invention, Figure 1 represents a sectional side view of the combined form of apparatus, taken on line 1 1 in Fig. 2. Fig. 2 represents a top plan view of the novel form of combined picker and lapper for cotton waste with the top casing removed.

In the said drawings like numbers of reference designate corresponding parts throughout.

Referring to the drawings, the machine-framing 5 consists of an ordinary box-like structure provided with cross-beams for bracing the same together, and is constructed with an extension upon the right-hand upper end for the traveling endless feed-apron 6 to work on in a well-known manner. At the inner end of feed-apron 6 are mounted horizontally a pair of feed-rolls, 7, which feed directly into the first of the beater-cylinders, 8, by means of a lateral opening formed longitudinally therein.

The beater-cylinder 8 is placed in the framing 5 with its axis horizontal, and is provided with a revolving shaft, 9, lying in the axial line thereof and provided with the diametrically-opposite cuts or stripping-grooves 10, running the length of the axis, and is armed with the straight radial beater-arms 11, fixed thereon in a plane containing the axis of said shaft. At corresponding points on the interior of the cylinder 8, a little below the axis thereof, are set the fixed pins 12. The sifting-grate 13 is formed in the lower side or bottom of cylinder 8, longitudinally thereof, and composes about two-thirds of the area of said under half.

The second beater-cylinder, 14, is mounted in framing 5 parallel with cylinder 8, and lies in lateral communication therewith throughout its length. This cylinder is constructed precisely like the first beater cylinder, 8, with the exception of having one row less of fixed pins 12 therein and being formed of a little smaller diameter than said cylinder 8.

The third or last beater-cylinder, 15, is set across the framing 5 parallel with cylinder 14, and the two are opened into each other for the whole length, as shown. This cylinder is made similar to the adjacent beater-cylinder 14, with the exception of having no grating 13 and being of a less diameter than the same.

The catch-box 16 is of a cylindrical form and is placed beside the beater-cylinder 15 and communicates therewith. Within the catch-box are disposed the revolving thread-catching bars 17, formed with the longitudinal stripping-grooves 18, and placed parallel within a triangular area, as shown.

The casing 19 is constructed in a suitable form to contain and cover the pair of revolving wire-gauze lapper-drums 20, placed horizontally within the same. The casing 19 is in communication with the adjacent side of the catch-box 16, and at the exit thereof are mounted the pair of revolving delivery press-rolls 21. Below the lapper-drum casing 19 is a rotary exhaust-fan, 22, provided with an arrangement of suction-pipes, 23, comprising a horizontal

section and the upright end sections connected therewith and opening into the respective ends of the gauze lapper-drums 20 in a manner well known to cause a suction-draft therein, for the purpose hereinafter described.

The sifting-grates 13 of the beater-cylinders 8 and 14, respectively, are shown as in communication from below with the open air. If preferred, there may be formed a dead-air chamber, 24, by making a closed box (represented in broken lines) beneath said grates and in communication therewith.

The upright power-shaft 25 is provided with a worm which meshes with the gear 26, fixed on the rotary shaft 27, suitably mounted on the side of the machine-framing 5, as indicated. The shaft 27 turns in the direction of the adjacent arrow, and by means of the fixed pinions 35 and 36 on the respective ends thereof and suitable intermediate gearing, consisting in the bevel-gear 37 of the shaft 38 of the lapper-drum 20, the bevel 39, shaft 40, and the cogs 41 and 42, it is made to revolve the feed-apron, feed-rolls, and the lapper-drums, respectively, as per the accompanying arrows. The power-belt 28 (shown in portion at the bottom of the machine-framing 5 in Fig. 1) operates the fan 22, the shaft of which is belted to the shaft 9 of cylinder 15 by means of belt 29, and thereby revolves the same. By means of the interbelting of the bands 30, 31, 32, and 33 the thread-catching bars 17 are revolved, likewise the respective shafts 9 of the beater-cylinders 14 and 8, all in the directions of the indicating-arrows.

Considering the above description of the apparatus the operation of the apparatus will be readily understood. The machine being started to run, the cotton waste is fed, by the feed-apron and rolls 6 and 7, respectively, into the first of the series of beater-cylinders, 8, and is therein whipped about and thence passed through the second cylinder, 14, and likewise the third cylinder, 15. In its course through these beater-cylinders the dirt is knocked out of the cotton waste and falls through the sifting-grates 13, and the waste is pulled and beat open, so that the portions of contained threads are extracted and become wound about the shafts 9. The fixed pins 12 are arranged to form a sort of a comb with the passing beater-arms 11, and the light fleecy short-fiber cotton is carried through the cylinders partly by means of the suction-draft created by the exhaust-fan 22, and is passed over the bars 17 of the catch-box, which serve to catch and retain the remaining loose threads contained in the fleecy picked cotton. The lapper-drums 20 act as in lapping-machines and catch the extracted cotton fiber and form it into a body or lap, which is passed therethrough and thence between the delivery press-rolls 21, which form it into quite a compact lap as it is there delivered from the machine. The bits of threads extracted from the cotton waste during its passage through the machine are caught and lodged about the shafts 9 and the catch-bars 17, from where the entangled threads may be easily removed by passing a knife-blade along the stripping-grooves 10 and 18 of the shafts and bars, respectively.

If preferred, the construction of the third beater-cylinder, 15, may be changed to that of the others by adding a sifting-grate, 13, thereto, and the arrangement of the thread-catching bars 17 in the catch-box may be varied from the manner shown.

By virtue of the combined form of the picker and lapper apparatus herein shown and described the cotton waste is very readily worked and the short-fiber cotton is obtained therefrom in a clean and well-picked condition, and is, moreover, formed into a compact lap in good commercial shape.

There may be various modifications made in the several features of the herein described and shown invention without, however, making a substantial departure from the spirit of the same as described.

I do not claim the combination, with a casing or cylinder, of one or more rotary thread-catching bars provided with a stripping-groove and disposed within the casing or cylinder.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with one or more beater-cylinders having lateral openings therein and each provided with revolving beaters, of a catch-box communicating with said cylinder or cylinders and provided with one or more revolving thread-catching bars, all constructed substantially as described, whereby the cotton waste may be passed through the beater cylinder or cylinders, thence through the catch-box, and be picked, as described.

2. The combination, with one or more beater-cylinders having lateral openings therein and each provided with internal fixed pins and a revolving beater, of a catch-box placed in communication with said cylinder or one of said cylinders and provided with one or more revolving thread-catching bars, all substantially as described, whereby the cotton waste may be passed in succession through the beaters and the catch-box and the short fiber and threads be separated therefrom, as described.

3. The combination, with a series of beater-cylinders placed in lateral communication and provided each with a revolving beater, of a catch-box communicating with said cylinders and provided with a set of revolving thread-catching bars, a set of fleece or cotton catching lapper-drums in free communication with the said catch-box, substantially as described, whereby the cotton waste may be passed in succession through the beater-cylinders and catch-box and the short fiber therein extracted and subsequently caught and lapped by the lapper-drums, as described.

4. The combination, with a series of beater-cylinders arranged in lateral communication and each provided with a revolving beater and internal fixed pins, and one or more of the cylinders formed with a sifting-grate in the

bottom or bottoms thereof, of a catch-box opening laterally into the adjacent beater-cylinder and provided with a set of revolving thread-catching bars, and a set of revolving cotton-catching gauze lapper-drums, all constructed and operated substantially as and for the purpose herein described.

5. The combination, with a series of intercommunicating beater-cylinders placed laterally together and each provided with internal fixed pins and with a revolving shaft having beater-arms and longitudinally-disposed stripping-grooves formed thereon, of a catch-box opening laterally into the adjacent or terminal beater-cylinder and provided with a set of revolving thread-catching bars, each formed with longitudinally-disposed stripping-grooves, a set of cotton-catching lapper-drums adjacent to and communicating with said catch-box, and exhaust-fans for said lapper-drums, all constructed and arranged substantially as and for the purpose herein described.

6. The combination, with a series of horizontal intercommunicating beater-cylinders placed laterally together and each provided with a revolving shaft having stripping-grooves thereon and radial beater-arms, and each cylinder provided with a set of fixed pins having their ends cleared by the passing beater-arms, of a catch-box adjacent to and opening into the terminal beater-cylinder and provided with a set of horizontal revolving thread-catching bars, each provided with one or more longitudinal stripping-grooves, a set of horizontal revolving gauze lapper-drums provided with exhaust-fans, and delivery press-rolls, all arranged and constructed substantially as described, whereby the cotton waste may have the short-fiber cotton picked therefrom and formed into a lap, as described.

7. The combination, with a series of three horizontal beater-cylinders of decreasing sizes having lateral openings therein and placed together in communication, and each provided with a revolving shaft having stripping-grooves and fixed beater-arms and a set of fixed pins, the first and second of said cylinders formed with a sifting-grate in the bottoms thereof, of a catch-box provided with a set of horizontal revolving thread-catching bars formed with longitudinal stripping-grooves, said catch-box being in lateral communication with the third beater-cylinder, a set of cotton-catching lapper-drums and exhaust-fans and press-rolls for said drums, the said lapper-drums formed of gauze and placed horizontally and in communication with said catch-box, and a set of feeding devices for the first beater-cylinder, all constructed and arranged substantially as and for the purpose herein described.

8. The catch-box consisting of a suitable casing and of a set of revolving thread-catching bars provided with one or more stripping-grooves, constructed substantially as described, for catching the threads from cotton waste or the like, as described.

9. The combination, with a series of communicating beater-cylinders provided with shafts 9, having the beater-arms 11 thereon, of the connected catch-box 16, provided with thread-catching bars 17, and of the set of gauze lapper-drums 20, provided with a suction-fan, all substantially as and for the purpose described.

10. The combination, with the communicating series of beater-cylinders 8, 14, and 15, provided with the shafts 9, having stripping-grooves 10 and beater-arms 11, and formed with the sifting-grates 13, of the communicating catch-box 16, provided with the thread-catching bars 17, formed with stripping-grooves 18, the casing 19, provided with the gauze lapper-drums 20 and press-rolls 21, and the exhaust-fan 22, all constructed and operated substantially as described.

11. The catch-box 16, provided with the revolving thread-catching bars 17, formed with the stripping-grooves 18, substantially as and for the purpose described.

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Witnesses:
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